Data Network or PDN, at least one base station controller (BSC) 40, and a plurality of base transceiver stations (BTS) 50 that transmit in a forward or downlink direction both physical and logical channels to the mobile station 100 in accordance with a predetermined air interface standard. A reverse or uplink communication path also exists from the mobile station 100 to the network operator 10, which conveys mobile originated access requests and traffic.

The air interface standard can conform to any suitable standard or protocol, and may enable both voice and data traffic, such as data traffic enabling Internet 70 access and web page downloads. In the presently preferred embodiment of this invention the air interface standard could conform to the conventional 800-900MHz AMPS standard, or to a Code Division Multiple Access (CDMA) standard, such as IS-95 or one based on IS-95. In other embodiments the air interface standard could conform to an 800-900MHz Time Division Multiple Access (TDMA) air interface, or to one that supports a GSM or an advanced GSM protocol and air interface.

The network operator 10 may also include a suitable type of Message Center (MC) 60 that receives and forwards messages for the mobile stations 100. Other types of messaging service may include Supplementary Data Services and one under currently development and known as Multimedia Messaging Service (MMS), wherein image messages, video messages, audio messages, text messages, executables and the like, and combinations thereof, can be transferred between the network and the mobile station 100.

The mobile station 100 typically includes a microcontrol unit (MCU) 120 having an output coupled to an input of a display 140 and an input coupled to an output of a keyboard or keypad 160. The mobile station 100 may be a handheld radiotelephone, such as a cellular telephone or a personal communicator. The mobile station 100 could also be contained within a card or module that is connected during use to another device. For example, the mobile station 10 could be contained within a PCMCIA or similar type of card or module that is installed during use within a portable data processor, such as a laptop or notebook computer, or even a computer that is wearable by the user.

The MCU 120 is assumed to include or be coupled to some type of a memory 130,

including a read-only memory (ROM) for storing an operating program, as well as a random access memory (RAM) for temporarily storing required data, scratchpad memory, received packet data, packet data to be transmitted, and the like. A separate, removable SIM (not shown) can be provided as well, the SIM storing, for example, a preferred Public Land Mobile Network (PLMN) list and other subscriber-related information. The ROM is assumed, for the purposes of this invention, to store a program enabling the MCU 120 to execute the software routines, layers and protocols required to implement the methods in accordance with these teachings, as well as to provide a suitable user interface (UI), via display 140 and keypad 160, with a user. Although not shown, a microphone and speaker are typically provided for enabling the user to conduct voice calls in a conventional manner.

The mobile station 100 also contains a wireless section that includes or is coupled to a digital signal processor (DSP) 180, or equivalent high speed processor or logic, as well as a wireless transceiver that includes a transmitter 200 and a receiver 220, both of which are coupled to an antenna 240 for communication with the network operator 10. At least one local oscillator (LO) 260, such as a frequency synthesizer, is provided for tuning the transceiver. Data, such as digitized voice and packet data, is transmitted and received through the antenna 240.

It is assumed that the signal is transmitted in the 800MHz-900MHz band, and that the third harmonic of the transmitted signal will at least partially overlap the ISM band wherein a co-located Bluetooth (BT) host 300 and associated Bluetooth devices 302A and 302B communicate via the frequency hopping scheme discussed above (in the 2400MHz to 2500MHz band). More or less than two Bluetooth devices could be provided. In but one example, BT device 302A is a wireless headset that is worn by the operator, while BT device 302B is a printer. The combination of the BT host 300 and the BT devices 302A, 302B is referred to for convenience as the Bluetooth subsystem 304, and may be considered to be a local area data communications network subsystem, wherein the communicated data can be voice data, computer data, input/output data, or any desired type of data.

A digital data bus 120A is assumed to provide communication between the MCU 120 and the BT host 300, and it is further assumed that the BT host 300 is installed on the

same platform as the mobile station 100, or is otherwise operated in close proximity to the mobile station 100. By definition the BT devices 302A, 302B are assumed to be located within some number of meters of the BT host 300. Each of the Bluetooth host 300 and Bluetooth devices 302 includes the above-described Radio and Baseband (BB) layers, and typically also the higher layers that were discussed above.

Referring to Fig. 2, it can be seen that for some frequency channels on which the mobile station 100 transmits the 3rd harmonic of the transmitted signal will overlap the ISM band. Within the ISM band the Bluetooth host 300 and Bluetooth devices 302 are communicating using the pseudorandom hopping pattern amongst the 79 channels spaced 1MHz apart. Depending on the bandwidth of the mobile station 100 transmission (e.g., 30kHz for AMPS and DAMPS, 5MHz for CDMA) at least one and possibly four or more of the Bluetooth channels can be interfered with by the 3rd harmonic of the mobile station transmission.

In accordance with a first embodiment of these teachings this problem is overcome by changing or altering the frequency hopping pattern of the Bluetooth host 300 and Bluetooth devices 302 so as to avoid those channels where interference from the mobile station 100 exists.

In accordance with an aspect of these teachings a technique is provided for signaling the required alteration of the frequency hopping pattern from the Bluetooth host 300 to the Bluetooth devices 302A and 302B.

More specifically, the MCU 120 is assumed to have knowledge of both the current transmit channel of the mobile station 100 and the frequency hopping pattern of the Bluetooth subsystem 304. Referring also to Fig. 3, at Step A of the first embodiment the MCU 120 determines, when first coming to a new transmit channel, if there is a possibility that the 3rd harmonic of the signal to be transmitted (or some other known frequency or frequency component) can interfere with the operation of the Bluetooth subsystem 304. If the determination is negative, then operation continues in a normal fashion so as to transmit on the assigned channel (Step B). If the determination at Step A is positive, then at Step C the MCU may make a further determination, based on the bandwidth of the transmission, of how many Bluetooth subsystem 304 channels may be